BASIS FOR THE AMENDMENT

Claim 4 has been canceled. The limitations of Claim 4 have been included in Claim 1. The amendment of Claim 1 is further supported at page 14, 1st paragraph, of the specification and the paragraph bridging pages 14 and 15.

New Claim 22 has been added as supported by the specification and claims as originally filed.

The abstract has been amended to correct minor informalities.

No new matter is believed to have been added by entry of this amendment. Entry and favorable reconsideration are respectfully requested.

Upon entry of this amendment Claims 1-3 and 5-22 will now be active in this application.

REMARKS

Applicants wish to thank Examiner Wang for the helpful and courteous discussion with Applicants' Representative on August 29, 2007. The Examiner agreed that the proposed claim amendments appear to overcome the rejections of the claims as being indefinite. The following expands upon the discussion with the Examiner.

Applicants respectfully request reconsideration of the application, as amended, in view of the following remarks.

The present invention as set forth in **Claim 1** relates to a positive electrode active material which comprises a lithium-cobalt composite oxide represented by the formula $Li_pCo_xM_yO_zF_a$ (wherein M is a transition metal element other than Co or an alkaline earth metal element, $0.9 \leqq p \leqq 1.1$, $0.980 \leqq x \leqq 1.000$, $0 \leqq y \leqq 0.02$, $1.9 \leqq z \leqq 2.1$, $x+y=1$ and $0 \leqq a \leqq 0.02$) and comprising a mixture comprising substantially spherical first particles of lithium-cobalt composite oxide having such a sharp particle size distribution that the volume basis cumulative size D10 is at least 50% of the average particle size D50, and the volume basis cumulative size D90 is at most 150% of the average particle size D50, and second particles of lithium-cobalt composite oxide filling the space among the above lithium-cobalt composite oxide particles, in a mass ratio of first particles/second particles of from 1/2 to 9/1;

wherein the first particles are large particles having an average particle size D50 of from 7 to 20 μm, and the second particles are small particles having an average particle size of from 10 to 30% of D50 of the first particles; and that an aspect ratio of the first particles is from 2/1 to 1/1.

By mixing the above substantially spherical first particles of a lithium' cobalt composite oxide having the above predetermined sharp particle size distribution, and the above second particles of a lithium-cobalt composite oxide filling the space among the first

particles, in the above predetermined mixing ratio, it becomes possible to accomplish the object of the present invention for the first time, namely, to obtain a positive electrode active material having a compacted dense structure and a large volume capacity density and press density (see page 5, lines 9 to 26 of the present specification).

One feature of the positive electrode active material of the present invention resides in that this material comprises substantially spherical first particles of a lithium-cobalt composite oxide which has a sharp particle size distribution attributable to a predetermined particle size distribution, and second particles of a lithium-cobalt composite oxide filling the space among the above lithium-cobalt composite oxide (first particles).

The Examiner has cited Nakamura et al only to show that a narrow particle size distribution is desirable for higher packing density. Matsubara is not applicable to amended Claim 1 which includes the limitations of Claim 4 which was not rejected over Matsubara.

Moriuchi et al, Nakamura et al and Matsubara et al, alone or in combination, fail to disclose or suggest the constitution of the present invention wherein a lithium-cobalt composite oxide (first particles) having a predetermined particle size distribution and a lithium-cobalt composite oxide (second particles) filling the space among the lithium-cobalt composite oxide (first particles) are mixed in a predetermined mixing ratio to form a mixture.

Moriuchi et al, Nakamura et al and Matsubara et al, alone or in combination, fail to disclose or suggest that the first particles are large particles having an average particle size D50 of from 7 to 20 μm, and the second particles are small particles having an average particle size of from 10 to 30% of D50 of the first particles; and

wherein an aspect ratio of the first particles is from 2/1 to 1/1.

Further, Moriuchi et al, Nakamura et al and Matsubara et al, fail disclose nor suggest the technical concept of realizing a compacted dense structure and a large volume capacity density and press density by using the positive electrode active material having such constitution.

As stated above, Matsubara is not applicable to amended Claim 1 which includes the limitations of Claim 4 which was not rejected over Matsubara.

Moreover, by limiting the aspect ratio of the first particles, it is considered that the present invention can be distinguished from Mourichi et al., which discloses a mixture simply containing particles having a large particle size and particles having a small particle size. There is no aspect ratio in Mourichi et al.

By employing a lithium-cobalt composite oxide having the first particles of which particle size, particle size distribution and aspect ratio are limited and the second particles of which particle size is limited, it is possible to obtain a lithium-cobalt composite oxide having a higher press density and an improved packing function, as compared to the lithium-cobalt composite oxide of Mourichi et al. wherein only particle sizes of the large particles and the small particles are limited. Note also **new Claim 22**.

By employing particles having a large particle size of which the aspect ratio is close to 1 and the shape is substantially spherical, a lithium-cobalt composite oxide having a higher press density and an improved packing function can be obtained, as compared to the lithium-cobalt composite oxide of Mourichi et al. wherein particles having a specific large particle size and small particles having a specific small particle size are simply mixed.

Moriuchi et al disclose a mixture of lithium-cobalt composite oxides containing a lithium cobalt composite oxide having an average particle size of from 7 to 13 μm and a

lithium-cobalt composite oxide having an average particle size of from 1 to 6 μm in a weight ratio of 1: 0.1-1.5 (Claim 1). This prior art reference also describes that the average particle size of the mixture of lithium-cobalt composite oxides is within a range of from 5 to 13 μm (paragraph 0024). It further describes that the diameter of 10% volume (D10) of this mixture of lithium-cobalt composite oxides is within a range of particle size distribution of from 2 to 6 μm, and the diameter of 90% volume (D90) is within a range of particle size distribution of from 15 to 25 μm (paragraph 0024).

The Examiner has cited Nakamura et al only to show that a narrow particle size distribution is desirable for higher packing density. Nakamura et al do not cure the defects of Moriuchi et al.

As stated above, Matsubara is not applicable to amended Claim 1 which includes the limitations of Claim 4 which was not rejected over Matsubara. In addition, Matsubara discloses a lithium- nickel-cobalt composite oxide as a positive electrode active material. Matsubara discloses that the average particle size of this positive electrode active material is preferably from 5 to 30 μm (paragraph 0026). It further describes that this positive electrode active material is made of particles having limited particle size distributions with 10% of the particle size distribution being 0.5D or higher and 90% being 2D or lower, relative to the average secondary particle size D (paragraph 0017).

However, Moriuchi et al, Nakamura et al and Matsubara et al, neither disclose nor suggest the constitution of the present invention wherein a lithium-cobalt composite oxide (first particles) having a predetermined particle size distribution and a lithium-cobalt composite oxide (second particles) filling the space among the lithium-cobalt composite oxide (first particles) are mixed in a predetermined mixing ratio to form a mixture. Further, Moriuchi et al, Nakamura et al and Matsubara et al, neither disclose nor suggest the technical

concept of realizing a compacted dense structure and a large volume capacity density and press density by using the positive electrode active material having such constitution.

With the particles described in Moriuchi et al, Nakamura et al and Matsubara et al, simply having the predetermined particle size and particle size distribution, it is **impossible** to obtain a positive electrode active material according to the present invention, having a large volume capacity density. This will be evident from the comparison between Examples 1 to 4 and Example 5 (Comparative Example) of the present specification (please see the data in the following Table 1 extracted from the data of the present specification).

Table 1: The comparison of the apparent density after pressing

		The mixture ratio of the first particles and the second particles (the basis of mass)	The apparent density after pressing (g/cm3)	The initial weight capacity density (mA/g)
Example 1	Present invention	A:B = 60:40	3.20	159
Example 2	Present invention	A:B = 80:20	3.23	160
Example 3	Present invention	A:B = 40:60	3.13	160
Example 4	Present invention	E:B = 60:40	3.14	160
Example 5	Comparative example	A = 100	2.950	160

Moreover, none of Moriuchi et al, Nakamura et al and Matsubara et al disclose or suggest a press density of the lithium-cobalt composite oxide of from 3.1 to 3.40 g/cm^3 as claimed in new Claim 22.

Therefore, the rejection of the claims under 35 U.S.C. § 103(a) over Moriuchi et al (JP 2003-257416), Nakamura et al (US 6,103,213) and Matsubara et al (US 2001/0010807) is believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of this rejection is respectfully requested.

The rejection of Claims 1, 3, 5, 16 and 18 under 35 U.S.C. § 112, 2nd paragraph, is obviated by the amendment of the claims.

The objection to the abstract is obviated by the new abstract. A copy of the new abstract has been provided on a separate sheet, attached herewith.

Regarding the specification, the Applicants have not become aware of any typographical errors.

This application presents allowable subject matter, and the Examiner is kindly requested to pass it to issue. Should the Examiner have any questions regarding the claims or otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

Respectfully submitted,

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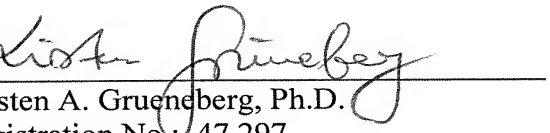

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